

REAL-TIME. IN-LINE. REAL FAST.

# MAVERICK

RAMAN-BASED MONITORING OF MULTIPLE  
CRITICAL PARAMETERS, READY TO GO IN MINUTES.



# MEET MAVERICK

THE ONLY PLUG-AND-PLAY, READY IN MINUTES, IN-LINE MULTIPARAMETER PAT PLATFORM

MAVERICK is powered by Raman spectroscopy and purpose-built *de novo* model for simultaneous real-time measurements of multiple key process parameters in mammalian cell cultures without the costs, complexities, and risks of conventional methods. There's no need to deal with complex empirical calibration models, reagents, or unreliable auto-sampling systems to implement in-line bioreactor monitoring.

It's all in-line gain, with no modeling pain.



Monitoring of multiple bioprocess parameters right out of the box.



Walk-away automation with integrated analog and digital feed controllers and optional secure remote monitoring.



Parallel and continuous monitoring of up to six bioreactors from a single hub.



Analog and OPC UA communication options for plug-and-play integration with automation and data acquisition systems.



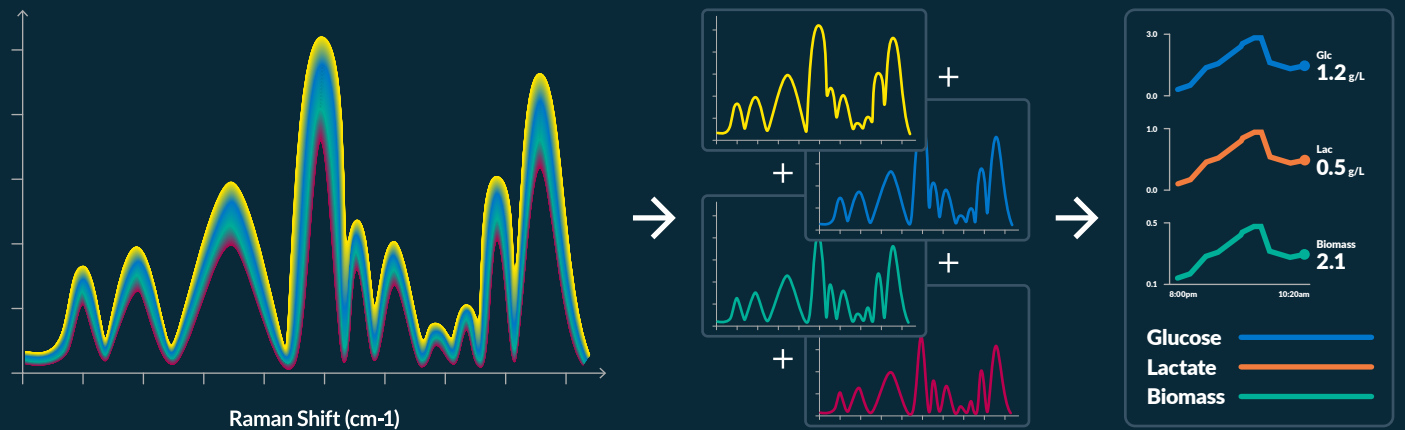
Straightforward validation process and CFR 21 part 11 compliance-ready software enable seamless method tech transfer.



MAVERICK's *de novo* model will continue to evolve, with additional process parameters that can be added through software upgrades.

# INSTANT INSIGHTS WITH DE NOVO MODEL

QUANTIFICATION OF GLUCOSE, LACTATE AND TOTAL BIOMASS IN CELL CULTURE WITHOUT "BLACK BOX" EMPIRICAL RAMAN CALIBRATION MODELS



Raman spectrum is collected from the bioreactor

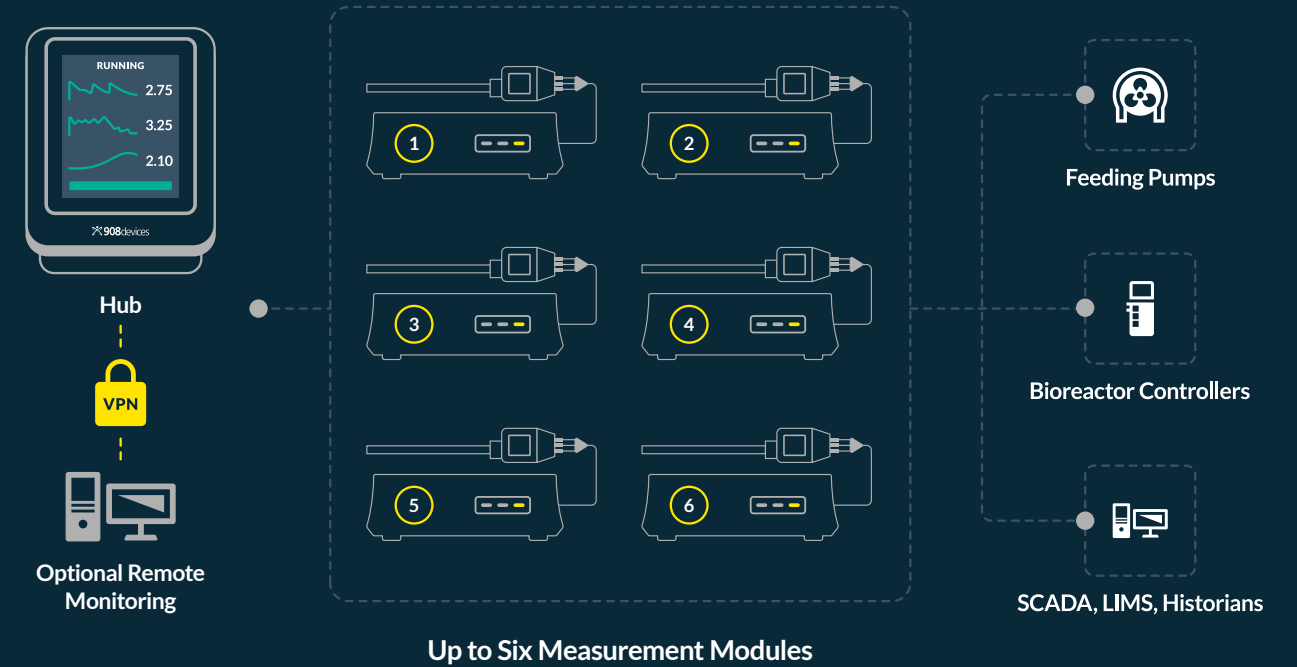
Spectrum analyzed and interpreted in real-time by de novo model

Process parameters are quantified and displayed automatically

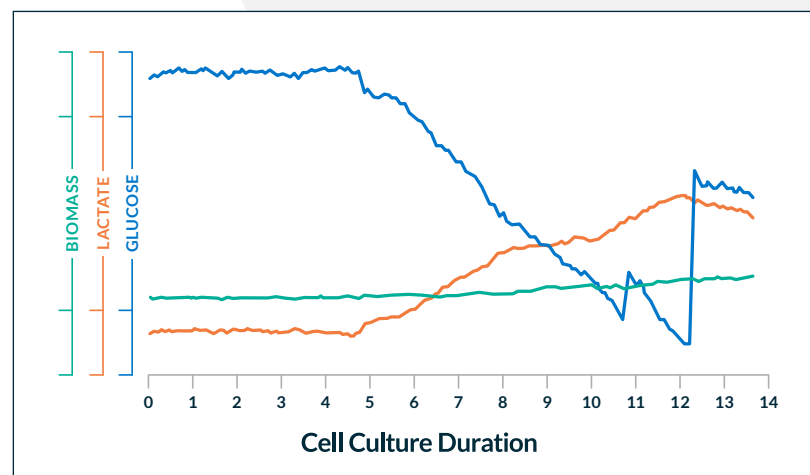
# A SIX BIOREACTOR MULTIPLEX FLEX

EASILY MONITOR AND CONTROL UP TO SIX BIOREACTORS SIMULTANEOUSLY

- Control feeding pumps directly or send the measured parameters to an existing automation system
- Securely monitor your bioprocess from anywhere with optional remote monitoring via a web browser



## INSTANTLY ENHANCE UNDERSTANDING AND CONTROL OF YOUR BIOPROCESS



### MEASURE AND CONTROL GLUCOSE CONCENTRATION

Dynamic control of feeding, enabled by real-time glucose measurements, helps optimize cell growth and productivity while minimizing accumulation of toxic metabolites and ensuring product quality

### MONITOR LACTATE CONCENTRATION

Continuously monitoring lactate concentration is crucial to prevent potentially toxic effects that can compromise productivity and product quality

### TRACK TOTAL BIOMASS

Tracking the biomass trend over the cell culture duration provides valuable insights on cell growth for process optimization and detection of deviations

# TAKE IT OUT OF THE BOX AND YOU'RE HALFWAY DONE WITH THE SETUP PROCESS



## BIOPROCESS INSIGHTS AT YOUR FINGERTIPS

Take your understanding of bioprocess to the next level by combining real-time process insights offered by MAVERICK and at-line spent media analysis provided by REBEL.

### EVERYTHING YOU NEED TO GET STARTED



#### OPTICAL IMMERSION PROBE

- Autoclavable probe compatible with standard bioreactor ports
- Automatic probe identification and compliance traceability
- Magnetic probe coupling ensures secure attachment and proper alignment
- No optical isolation of bioreactor required

#### MEASUREMENT MODULE

- Autonomous operation
- Optional direct control of feed pumps
- Compact footprint
- Electrical interrupt switch for enhanced operator safety

#### HUB

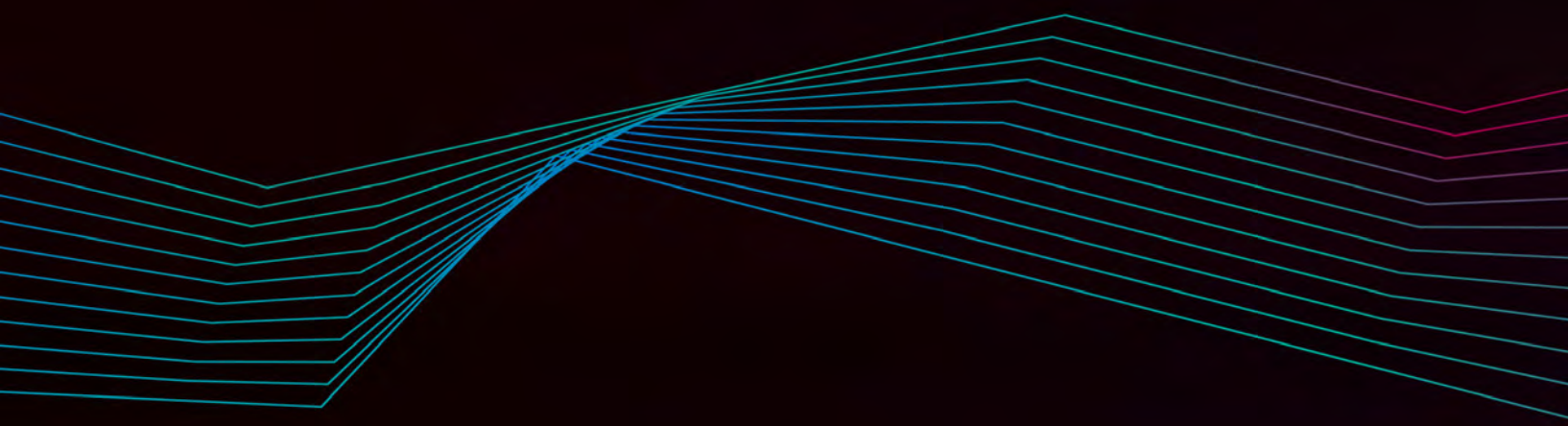
- Simultaneous control of up to six measurement modules
  - Data transfer over Ethernet or OPC UA
- High-resolution, color touchscreen interface supports:
- User authentication
  - System configuration and operation
  - Guided calibration of immersion probes
  - Viewing system status, monitoring of real-time measurements and trends

#### SOFTWARE

- CFR 21 part 11 compliance ready
- Optional remote monitoring from any web browser
- Access to Raman spectral data

#### CALIBRATION KITS AND ACCESSORIES

- Two-point probe calibration standards
- Probe stand for convenient calibration and probe storage on the bench



 908devices

# MAVERICK

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